

WHAT IS CLAIMED IS:

1. A controller for controlling interruption and restarting data writing to a recording medium, wherein the data writing is performed by emitting a laser beam against the recording medium at a write level that is used when data read from a buffer memory is recorded on the recording medium, the controller comprising:

an address memory for storing at least one of an address of the recording medium and an address of the buffer memory when the writing of data to the recording medium is interrupted, each address indicating a data location where the writing interruption occurred;

a synchronizing circuit for reading the data written to the recording medium prior to the interruption by emitting the laser beam at a read level, reading the data stored in the buffer memory, and synchronizing the written data and the stored data; and

a restart circuit for restarting the data writing based on the address stored in the address memory, wherein the restart circuit switches the laser beam from the read level to the write level before the restart circuit restarts the data writing.

2. The controller according to claim 1, further comprising a level memory for storing data of the write level that exists when data writing is interrupted, wherein the level of the laser beam when writing is restarted is in accordance with the data stored in the level memory.

3. The controller according to claim 1, wherein the laser beam is switched from the read level to the write level when any one of an address of the data read from the recording medium and an address of the data read from the buffer memory matches an address preceding the address

stored in the address memory by a predetermined number of addresses.

4. A controller for controlling interruption and  
5 restarting data writing to a recording medium, wherein the  
data writing is performed by emitting a laser beam against  
the recording medium in accordance with data read from a  
buffer memory, the controller comprising:

an address memory for storing at least one of an  
10 address of the recording medium and an address of the buffer  
memory when the writing of data to the recording medium is  
interrupted, each address indicating a location of data when  
the writing interruption occurred;

15 a synchronizing circuit for reading the data written  
to the recording medium prior to the interruption by  
emitting the laser beam, reading the data stored in the  
buffer memory, and synchronizing the written data and the  
stored data; and

20 a restart circuit for generating an instruction for  
restarting the writing of data to the recording medium based  
on the address stored in the address memory, wherein the  
restart circuit generates the instruction for restarting the  
writing of data before the data read from the recording  
medium by the synchronizing circuit reaches the interruption  
25 location.

5. The controller according to claim 4, wherein the  
laser beam is emitted against the recording medium at a  
first power level during the writing of data and is emitted  
30 against the recording medium at a second power level during  
the reading of data by the synchronizing circuit, the second  
power level being lower than the first power level, and  
wherein the restart circuit provides time for the laser beam  
to shift from the second power level to the first power  
35 level when generating the instruction for restarting the

writing of data.

6. The controller according to claim 4, further comprising a level memory for storing data representing the power level of the laser beam that exists when the writing of data is interrupted, wherein the laser beam is emitted at a power level that is in accordance with the data stored in the level memory when writing is restarted.

10 7. The controller according to claim 4, further comprising a power source for supplying the optical head with power to generate the laser beam, wherein the power source is activated simultaneously with the generation of the instruction for restarting the writing of data.

15 8. A controller for controlling interruption and restarting data writing to a recording medium, wherein the data writing is performed by emitting a laser beam against the recording medium with a power that is in accordance with data read from a buffer memory and supplied from a power source, the controller comprising:

20 an address memory for storing at least one of an address of the recording medium and an address of the buffer memory when the writing of data to the recording medium is interrupted, each address indicating a data location where the writing interruption occurred;

25 a synchronizing circuit for reading the data written to the recording medium prior to the interruption by emitting the laser beam, reading the data stored in the buffer memory, and synchronizing the written data and the stored data; and

30 35 a restart circuit for restarting data writing based on the address stored in the address memory, wherein the power source is activated prior to the time when the writing of data is restarted.

9. The controller according to claim 8, further comprising a level memory for storing data of the power level that exists when data writing is interrupted, wherein the power level of the laser beam when writing is restarted is in accordance with the data stored in the level memory.

10. The data recorder according to claim 8, wherein the power source is activated when any one of an address of the data read from the recording medium and an address of the data read from the buffer memory matches an address preceding the address stored in the address memory by a predetermined number of addresses.

15 11. A method for controlling interruption and restarting of writing data to a recording medium, wherein the data writing is performed by emitting a laser beam against the recording medium at a write level that is in accordance with data read from a buffer memory, the method comprising:

20 storing at least one of an address of the recording medium and an address of the buffer memory when the writing of data to the recording medium is interrupted, each address indicating a data location where the writing interruption occurred;

25 reading the data written to the recording medium prior to the writing interruption by emitting the read level laser beam against the recording medium and reading the data stored in the buffer memory;

30 synchronizing the written data and the stored data; generating an instruction for restarting data writing to the recording medium based on the address stored in the address memory; and

35 shifting the laser beam from the read level to the write level before writing is restarted.

12. A method for controlling interruption and restarting of data writing to a recording medium, wherein the data writing is performed by emitting a laser beam against the recording medium in accordance with data read from a buffer memory, the method comprising:

storing at least one of an address of the recording medium and an address of the buffer memory when the writing of data to the recording medium is interrupted, each address indicating a data location where the writing interruption occurred;

reading the data written to the recording medium prior to the writing interruption by emitting the laser beam against the recording medium and reading the data stored in the buffer memory;

synchronizing the written data and the stored data;  
and

generating an instruction for restarting data writing based on the address stored in the address memory, wherein the writing is restarted before the location of the data read from the recording medium in the reading step reaches the interruption location.

13. A method for controlling interruption and restarting data writing to a recording medium, wherein the data writing is performed by emitting a laser beam against the recording medium at a power level that is in accordance with data read from a buffer memory and supplied from a power source, the method comprising:

storing at least one of an address of the recording medium and an address of the buffer memory when the writing of data to the recording medium is interrupted, each address indicating a data location where the writing interruption occurred;

reading the data written to the recording medium prior

to the writing interruption by emitting the laser beam and reading the data stored in the buffer memory;

synchronizing the written data and the stored data;

generating an instruction for restarting the writing  
5 of data to the recording medium based on the address stored  
in the address memory; and

activating a power source for generating power of the laser beam prior to the restart of the writing of data.